

APPLICANT: MOTOROLA, INC.

FCC ID: IHDT5ZR1

INSTRUCTION MANUAL

A preliminary draft copy of the Users Manual follows:

Introduction

Welcome

Thank you for choosing your Motorola phone from a global leader in communications technology. All Motorola digital cellular phones are designed and manufactured to meet Motorola's rigorous specifications and world-class quality standards. During development, our laboratory testing team took your cellular phone through rigorous durability tests including temperature, humidity, shock, dust, vibration, and drop tests—and the phone still worked!

We are confident that the phone you purchased will meet your own exacting standards. Enjoy your Motorola phone.

Understanding this Manual

Many of your phone options are accessed by a simple menu system. A full description of the menus and how to move around them is covered in the next section **Menu Navigation**. When the manual describes the use of each menu item, it will be assumed that you are familiar with the menu system.

Key Presses

Key presses are represented in this manual using symbols so that you may locate and use the required sequence quickly. A sequence of key presses may be shown as follows:

This means you should press  followed by , , and then , in sequence, not simultaneously.

Prompts and Messages

Your phone responds to key presses by displaying either easy to understand prompts that guide you to the next action, or simple messages confirming that your action is complete. Prompts and messages are represented in this manual in LCD style, for example:

Enter 1st Letter or Location ____

Other Symbols

You will find the following symbols used throughout this manual:

 A Note contains additional information which is relevant to the feature/item.

 **A Caution contains important additional information which is relevant to the efficient and/or safe usage of your phone.**

 This symbol indicates a short key sequence for the feature.

Menu Navigation

A large number of your phone's options are accessed by using menus which use a common approach for selection, change and cancellation.

Please read this section carefully before attempting to access a menu option. When you understand the common approach to menu navigation and how the menus are shown on the page, you will be able to access and change options with ease.

Menus and Sub-menus

A menu is a simple list of options. Some of these options provide access to a further list of options called a sub-menu. When navigating through the menus you may find it is helpful to think in terms of menu levels - the 'parent' menu being on one level and its sub-menus being on a lower level.

Entering the Menus

Press **END** then press **1** or the Smart Button (**⬇**) to enter the menu system

Navigating the Menus

You can navigate through the menu system using the volume keys located on the left side of the phone and the Smart Button (**⬇**) located on the right side of the phone. Use the upper and lower volume keys to scroll to sub-menus. Use the Smart Button to choose menus and functions.

Follow these symbols as a guide for using the keys on the side of your phone:

Press **⬆** to scroll up.

Press **⬇** to scroll down.

Press **⬇** to select.

You can also use your phone's **⬅*** and ***➡** keys to scroll through the menu system.

Leaving the Menus

Press **END** to exit the menu.

Menu Options with Security Codes

Some options are protected from misuse by requiring you to enter one of the security codes. To use these options, you must enter the requested code before proceeding.

Total Customer Satisfaction

At Motorola, Total Customer Satisfaction is a top priority. If you have a question, a suggestion or a concern about your Motorola Cellular Phone, Motorola wants to hear from you.

Please contact the Motorola Cellular Response Center by calling one of the local phone numbers in the following countries:

Austria	0800 297246
Belgium	0800 72 370
Czech Republic	00420 2 21 85 21 01
Denmark	4348 8005
Egypt	02 3411800
Eire	01 402 6887
Finland	0800 117 036
France	0 803 303 302
Germany	0180 35050
Greece	00800 441 28150
Italy	02 696 333 16
Jordan	06 863750
Kuwait	484 2000 Ext 1177
Lebanon	01 744156
Luxembourg	0800 21 99
Netherlands	0800 022 27 43
Norway	22 55 10 04
Oman	790925
Portugal	01 318 0051
Qatar	418999

Saudi Arabia	01 2303294
South Africa	0800 11 48 49
Spain	902 100 077
Sweden	08 445 1210
Switzerland	0800 553 109
Turkey	0212 425 9090
UK	0500 55 55 55
United Arab Emirates	04 32 11 66
Hong Kong	852 25063888
People's Republic of China	86 10 68466060
Singapore	65 4855 333
Taiwan	886 2 87731746
United States of America	1 800 331 6456
Canada	1 800 461 4575
For e-mail questions contact:mcrc@ei.css.mot.com	
For Internet questions contact: http://www.motorola.com	

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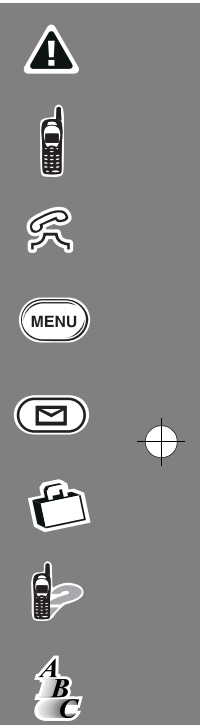
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The Manufacturer reserves the right to make changes in technical and product specifications without prior notice.



Safety

Wireless Phone Safety Tips **"Safety is your most important call!"**

Your Motorola wireless telephone gives you the powerful ability to communicate by voice - almost anywhere, anytime, wherever wireless phone service is available and safe conditions allow. But an important responsibility accompanies the benefits of wireless phones, one that every user must uphold.

When driving a car, driving is your first responsibility. If you find it necessary to use your wireless phone while behind the wheel of a car, practice good common sense and remember the following tips:

1. Get to know your Motorola wireless phone and its features such as speed dial and redial. If available, these features help you to place your call without taking your attention off the road.
2. When available, use a hands-free device. If possible, add an additional layer of convenience to your wireless phone with one of the many Motorola Original hands-free accessories available today.
3. Position your wireless phone within easy reach. Be able to access your wireless phone without removing your eyes from the road. If you receive an incoming call at an inconvenient time, if possible, let your voice mail answer it for you.
4. Let the person you are speaking with know you are driving; if necessary, suspend the call in heavy traffic or hazardous weather conditions. Rain, sleet, snow, ice, and even heavy traffic can be hazardous.

5. If you receive an incoming call at an inconvenient time do not take notes or look up phone numbers while driving. Jotting down a "to do" list or going through your address book takes attention away from your primary responsibility—driving safely.
6. Dial sensibly and assess the traffic; if possible, place calls when you are not moving or before pulling into traffic. Try to plan calls when your car will be stationary. If you need to make a call while moving, dial only a few numbers, check the road and your mirrors, then continue.
7. Do not engage in stressful or emotional conversations that may be distracting. Make people you are talking with aware you are driving and suspend conversations which have the potential to divert your attention away from the road.
8. Use your wireless phone to call for help. Dial 9-1-1 or other local emergency number in the case of fire, traffic accident or medical emergencies.¹
9. Use your wireless phone to help others in emergencies. If you see an auto accident, crime in progress or other serious emergency where lives are in danger, call 9-1-1 or other local emergency number, as you would want others to do for you.¹
10. Call roadside assistance or a special non-emergency wireless assistance number when necessary. If you see a broken-down vehicle posing no serious hazard, a broken traffic signal, a minor traffic accident where no one appears injured, or a vehicle you know to be stolen, call roadside assistance or other special non-emergency wireless number.¹



¹. Wherever wireless phone service is available.



Check the laws and regulations on the use of wireless telephones and their accessories in the areas where you drive. Always obey them. The use of these devices may be prohibited or restricted in certain areas.

For more information, please call 1-888-901-SAFE or visit the CTIA website at www.wow-com.com™.



Safety Information

IMPORTANT

Read this information before using your wireless handheld phone.

Exposure To Radio Frequency Signals

Your wireless handheld portable telephone is a low power radio transmitter and receiver. When it is ON, it receives and also sends out radio frequency (RF) signals.

In August 1996, The Federal Communications Commission (FCC) adopted RF exposure guidelines with safety levels for handheld wireless phones. Those guidelines are consistent with safety standards previously set by both U.S. and international standards bodies:

- American National Standards Institute (ANSI) IEEE. C95. 1-1992
- National Council on Radiation Protection and Measurement (NCRP). Report 86
- International Commission on Non-Ionizing Radiation Protection (ICNIRP) 1996
- Ministry of Health (Canada), Safety Code 6

Those standards were based on comprehensive and periodic evaluations of the relevant scientific literature. For example, over 120 scientists, engineers, and physicians from universities, government health agencies, and industry reviewed the available body of research to develop the ANSI Standard (C95.1).

The design of your phone complies with the FCC guidelines (and those standards). For additional information concerning exposure to radio frequency signals, see the statement by the FDA at the end of this user guide.

To maintain compliance with FCC RF exposure guidelines, if you wear a handset on your body, use the Motorola-supplied or approved carrying case, holster, or other body-worn accessory. If you do not use a body-worn accessory, ensure the antenna is at least one inch (2.5 centimeters) from your body when transmitting. Use of non-Motorola accessories may violate FCC RF exposure guidelines.

Antenna Care

Use only the supplied or an approved replacement antenna. Unauthorized antennas, modifications, or attachments could damage the phone and may violate FCC regulations.

Phone Operation

Normal Operation

Hold the phone as you would any other telephone, with the antenna pointed up and over your shoulder.

Tips on Efficient Operation

Observe the following guidelines to operate your phone most efficiently.

- Extend your antenna fully, if applicable.





- Do not touch the antenna unnecessarily when the phone is in use. Contact with the antenna affects call quality and may cause the phone to operate at a higher power level than otherwise needed.

Batteries

Caution: All batteries can cause property damage, injury, or burns if a conductive material, such as jewelry, keys or beaded chains, touches exposed terminals. The material may complete an electrical circuit and become quite hot. To protect against such unwanted current drain, exercise care in handling any charged battery, particularly when placing it inside your pocket, purse, or other container with metal objects. When the battery is detached from the phone, your batteries are packed with a protective battery cover; please use this cover for storing your batteries when not in use.

Driving

Check the laws and regulations on the use of wireless telephones in the areas where you drive. Always obey them. Observe the following guidelines when using your phone while driving.

- Give full attention to driving--driving safely is your first responsibility.
- Use hands-free phone operation, if available.
- Pull off the road and park before making or answering a call if driving conditions so require.

Electronic Devices

Most modern electronic equipment is shielded from RF signals. However, certain equipment may not be shielded against the RF signals from your wireless phone.

Pacemakers

The Health Industry Manufacturers Association recommends that a minimum separation of six inches (6") be maintained between a handheld wireless phone and a pacemaker to avoid potential interference with the pacemaker. These recommendations are consistent with the independent research by and recommendations of Wireless Technology Research.

Persons with pacemakers:

- should ALWAYS keep the phone more than six inches from their pacemaker when the phone is turned ON
- should not carry the phone in a breast pocket
- should use the ear opposite the pacemaker to minimize the potential for interference
- should turn the phone OFF immediately if you have any reason to suspect that interference is taking place

Hearing Aids

Some digital wireless phones may interfere with some hearing aids. In the event of such interference, you may want to consult your hearing aid manufacturer to discuss alternatives.

Other Medical Devices

If you use any other personal medical device, consult the manufacturer of your device to determine if it is adequately shielded from external RF energy. Your physician may be able to assist you in obtaining this information.

Turn your phone OFF in health care facilities when any regulations posted in these areas instruct you to do so. Hospitals or health care facilities may be using equipment that could be sensitive to external RF energy.

Vehicles

RF signals may affect improperly installed or inadequately shielded electronic systems in motor vehicles. Check with the manufacturer or its representative regarding your vehicle. You should also consult the manufacturer of any equipment that has been added to your vehicle.

Posted Facilities

Turn your phone OFF in any facility where posted notices so require.

Aircraft

Switch OFF your phone before boarding an aircraft.

Airline regulations prohibit using your phone while in the air. Check and comply with the policy of your airline regarding the use of your phone while the aircraft is on the ground.

Blasting Areas

To avoid interfering with blasting operations, turn your phone OFF when in a "blasting area" or in areas posted: "Turn off two-way radio." Obey all signs and instructions.

Potentially Explosive Atmospheres

Turn your phone OFF, do not remove your battery when you are in any area with a potentially explosive atmosphere, and obey all signs and instructions. Sparks from your battery in such areas could cause an explosion or fire resulting in bodily injury or even death.

Areas with a potentially explosive atmosphere are often but not always clearly marked. They include: fueling areas such as gasoline stations; below deck on boats; fuel or chemical transfer or storage facilities; areas where fuel odors are present (for example, if a gas/propane leak occurs in a car or home); areas where the air contains chemicals or particles, such as grain, dust, or metal powders; and any other area where you normally would be advised to turn off your vehicle engine.

For Vehicles Equipped with an Air Bag

An air bag inflates with great force. Do NOT place objects, including both installed or portable wireless equipment, in the area over the air bag or in the air bag deployment area. If in-vehicle wireless equipment is improperly installed and the air bag inflates, serious injury could result.





About Your Phone and Battery

Phone Overview

Your phone includes the following features:

Fixed Antenna—Provides superior connectivity.

Earpiece—Ultra-compact phone speaker.

Power Connector Port—Provides the connections for an external power supply and vehicular accessories.

Headset Jack—Provides the connection for an optional headset.

Microphone—Positioned for convenient conversation.

Function Keys

—Turns the phone On and Off.

—Acts as a “shift” key to access the secondary functions of other keys.

—Recalls phone numbers from memory.

—Stores phone numbers into memory.

—Clears characters from the screen.

—Ends phone calls.

—Places or answers calls.

 and —Can be used to scroll through memory entries and menu features.

 **Message Center Button**—Allows access to digital messages and voice mail messages.

 **Smart Button**—Use the Smart Button to recall information from memory, place and end calls, select menu features, and toggle features on and off. The symbol * in your display represents the Smart Button.

 **Volume Keys**—The upper and lower volume keys can adjust keypad, earpiece, and ringer volume. After pressing the Smart Button, the volume keys also scroll through memory entries and menu features.



Using the Smart Button

Use the Smart Button to place and end calls, enter menus, toggle features on and off, and select items in the display. The Smart Button is on the right side—easy to feel, easy to find, and easy to use.

The symbol * in your display represents the Smart Button.

Selecting Items in the Display

The most basic use of the Smart Button is for making selections. Whenever you are given a choice such as a ringer setting, press the Smart Button to select the setting you want.

Toggling Features On and Off

Some of your phone’s features toggle on and off. Use the upper or lower volume key to scroll to the desired feature, then press the Smart Button to select it.

Entering the Menu System

Press , then press  to access the menu. You will see Recent Calls.

 You can also enter the menu system by pressing  .

Placing and Ending a Call

You can use the Smart Button to place and end a call, as described in "Using Your Phone" on page 19.

Controlling Volume



Use the upper and lower volume keys to adjust earpiece, keypad, and ringer volume. When you press these keys, the phone's speaker demonstrates the current volume level.

To adjust earpiece volume during a phone call:

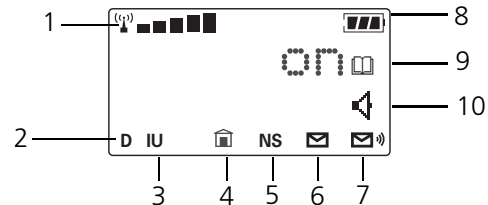
Press to raise or lower the volume.

To adjust the ringer volume and keypad while not in a phone call

Press to raise or lower the volume.

The Display

The display on your phone can show alphanumeric characters as well as useful information symbols. The various elements of the display are as follows:



1. **Signal Strength.** The more segments displayed in the bar graph, the better the signal strength.

2. **D**

3. **IU**

- 4.

5. **NS**

- 6.

- 7.

- 8.

- 9.

- 10.

Digital Indicator. If you are in a digital coverage area, the digital indicator appears. Your phone operates more efficiently in Digital mode.

In Use Indicator. Displayed when a call is in progress.

In-Building Indicator. The In-Building Indicator lights when the phone accesses an In-Building Cellular System or other non-public system.

No Service Indicator. If you travel beyond the range of a cellular system, the No Service Indicator appears to let you know that calls cannot be placed or received from your location.

Short Message Service. Displayed when the phone has received a message. The symbol will flash when your message storage area is full.

Voicemail Waiting Indicator. Displayed when you have a voice message waiting. The availability of this feature depends on your service provider.

Battery Charge Indicator. The more segments displayed, the greater the battery charge.

Phone Book Indicator. Displayed when editing the Phone Book

Speaker Indicator. Appears when the ringer is turned on. When the ringer is off, the icon has a slash through it.

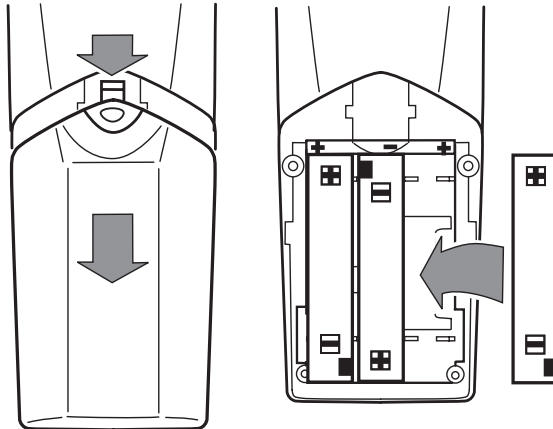
Your Battery

Installing the Batteries

New batteries are supplied uncharged and fitted within a protective battery carrier. To remove the batteries, press the release catch on the battery carrier and open the cover.

To install the batteries in your phone:

- 1 Press the release catch of the phone battery cover and slide the battery cover towards the bottom of the phone.
- 2 Align the positive and negative (+ and -) connections on the battery with the positive and negative (+ and -) connections within the phone.
- 3 Press the battery towards the connections and push it downwards until it clicks into place.
- 4 Replace the phone battery cover.



Important Battery Information

- ⚠ **Always treat your batteries with care. See 'Batteries', at the beginning of this manual.**
- ⚠ **Never leave your battery in extremely high temperatures (over 60°C), for example behind glass in very hot, direct sunlight.**
- ⚠ **Only Motorola Original Accessory batteries can be charged in the phone. This is to protect you and your phone from the risks of incorrect charging.**



Charging a New Battery

New batteries are supplied in a totally uncharged state.

To ensure maximum battery performance, a new battery (or battery that has not been used for several months) should be charged for at least 14 hours before use.

- 👉 A new battery will require several full charge/discharge cycles in order to achieve its optimum performance.
- 👉 A new battery, or a battery that has not been used for several months, may cause a premature fully charged indication. Ignore this indication and let the battery charge for several more hours, remove and re-insert the battery into the charger, and charge for an additional 14 hours.
- ⚠ **Your batteries will not charge if they are not matched properly to the phone connection markings (+ and -). Please ensure that you have installed the batteries properly before initiating a charge.**



To ensure that you enjoy maximum battery life and use your battery to its fullest capacity:

- The battery should be at or near room temperature when charging.

Battery Performance and Maintenance

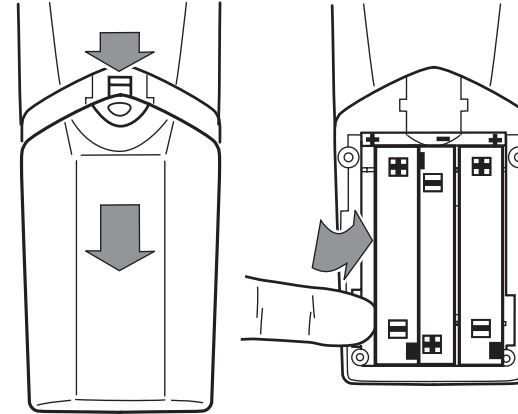
- Best battery performance will be achieved when you regularly charge and discharge batteries as instructed in this manual.
- Battery performance is greatly affected by network coverage.
- If left unused, a fully charged battery will discharge itself in approximately one month.
- When not in use, store your battery uncharged in a cool, dark and dry place.

Removing Your Batteries

⚠ Switch off your phone before removing batteries.
Failure to do so may damage your phone memory.

- 1 Press the release catch of the phone battery cover and slide the battery cover towards the bottom of the phone.

- 2 Remove the batteries.



Charging Your Battery Using the Travel Charger

The travel charger can power the phone and charge a fitted battery.

⚠ Ensure that the local mains voltage at your location matches that of your travel charger.

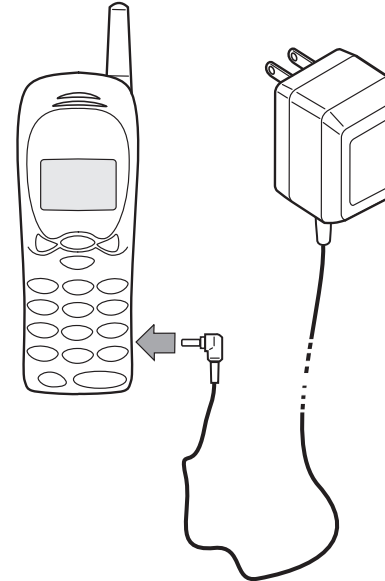
Install the batteries into your phone (see 'Installing the Batteries').

👉 *Your phone's internal charger is intended only for charging batteries. It does not provide power directly to your phone. You can still place and answer calls while using the internal charger, as long as the phone's batteries have at least a small charge. Remember that charging takes more time when you are actively using the phone. To place the phone in charger-only mode, press **⓪** once.*

To charge your battery:

1 Attach the correct adapter plug to the travel charger.

2 Connect the travel charger to the phone.



3 Insert the travel charger plug into a suitable power socket.

A beep-tone is heard and the battery icon flashes when charging begins.

👉 *The beep-tone on the phone will not occur if the batteries are installed improperly. The beep-tone may take two minutes to occur with new or fully drained batteries.*

The state of charging is monitored and displayed by your phone. See 'Battery Meter Indicators' later in this section for details.

Low Battery Warning

When the battery level is low and only a few minutes of talk time remain, a warning signal (two double beeps) will sound, and **Low Battery** will be displayed.



For a detailed battery level reading: Press **FCM** **4**.

The more segments filled on the battery gauge (■■■■), the greater the charge.

When the battery is completely discharged, your phone will turn off.

Battery Indicators

Your phone monitors and displays information about your battery. The following message will appear on the display, as the condition occurs:

Low Battery	The battery charge is low. The battery should be recharged.
--------------------	---

Battery Meter Indicators

The battery meter displays different messages depending on the batteries attached, and whether or not there is an external power source. The battery meter is found in the Call Related Features part of the Options Menu.

Charging Battery	The battery is being charged.
Charging Complete	Charging is complete.

 *When the battery is completely discharged, you must charge the battery for one minute before you can make or accept a phone call.*

When the battery is charging the display will show a blinking battery icon with the appropriate number of charge bars.

Using Your Phone

Placing and Receiving Calls

To turn the phone on, press and hold  until the display appears and you hear an audible alert.

Press and hold  again to turn the phone off. Powering off will be displayed, and you will hear an audible alert.

What You Will See

When you turn on your phone, it performs a self-test to let you know it is operational. When the test is completed, the display shows:

- one of several possible greetings, such as:
 - the name of your Service Provideror
 - an indication of local or non-local coverage area
- your phone number
- the Digital icon

Placing a Call

To place a call:

- 1 Turn the phone on.
- 2 Enter the number you want to call.

If you make a mistake, press  to erase one digit at a time. Press and hold  to clear the entire entry.

You can also recall a previously dialed or stored number. (See "Using Phone Memory" on page 21 for details on storing or recalling.)

- 3 Press and hold  until you hear a second tone.

or
Press  to place the call.

You will hear a single-tone alert (if the keypad tones are turned on) and see *Dialing XXXXXXXX*.

- 4 You can dial phone numbers with up to 32 digits, but only the last 20 digits appear in the display.

Press  to see the entire phone number.

Ending a Call

To end a call: Press 

or

- 1 Press and hold  until you hear a second tone.

You will see *Press * To End Call*.

- 2 Press  again to end the call.

Receiving a Call

Your phone must be powered on to receive calls.

Press 

Unanswered Call Indicator

When you cannot take a call, your phone keeps a count of your unanswered calls and alerts you with the message *Missed XX Calls*, where XX is the number of missed calls.

Press  to view missed calls.



Redialing a Number

A fast busy signal indicates that the cellular system is busy. With Automatic Redial, your phone calls continuously for the next four minutes.

When it makes a connection, the phone rings. You can distinguish this ring because it is half as long as the ring for a new incoming call. When the person you are calling answers, you can begin talking.



If you hear a fast busy signal:

- 1 You will see *Redial Call?*
Press **0** or press **END** to redial, or press **END** to exit.
- 2 If the call does not go through after four minutes, press **0**, or press **END** to continue the call attempt.
You will see *Redial*.

If you hear an ordinary busy signal:

- 1 Press **END** to hang up.
- 2 Press **0** or press **END** to redial the busy number.
You will see *Dialing 5551234*.

Muting the Microphone

For privacy during a call, mute the microphone. You can hear the person on the other end, but he or she cannot hear you.

- 1 Press **FCN** **6** to mute the microphone. You will see *Mute*.
- 2 Press **FCN** **6** again to resume normal conversation.

Using Phone Memory

Use your phone's internal Phone Book to store up to 99 names and numbers for easy access.

In this section you will learn how to:

- store names and numbers into the Phone Book
- recall phone numbers from memory
- clear names and numbers
- dial a number with Speed Dial and Turbo Dial™
- make notes on the scratchpad

Using Your Phone's Built-in Phone Book

Each phone number in your phone book is stored in a *memory location* numbered 01-99.

Arrange numbers for easy recall by storing related numbers in groups. If you store the numbers you call most in locations 01-09, then you can use Turbo Dial™ to call those numbers with a single key. (See "Using the Turbo Dial™ Function" on page 24 for details.)

You can also store names to identify phone numbers. Later, you can recall a number by the name that corresponds to it.

Storing Names and Numbers

How to Store Phone Numbers

- 1 Enter the phone number you want to store.

 You can store up to 32 digits per phone number entry.

- 2 Press  to begin storing.

The phone prompts you to enter a memory location. You will see *Location ____*.

- 3 Enter the two-digit memory location where you want the sequence stored.

or

Press  to store the sequence in the first available location.

or

Enter the first digit of the memory location, then press  to store the sequence in the first available location beginning with that digit.



- 4 After keying in a location or pressing  key, the screen will read *Enter Name:*

 The * symbol in your display represents the Smart Button.

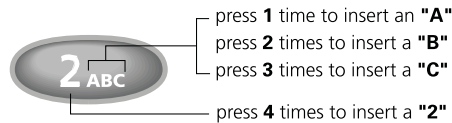
Pressing  without entering a name will store the number without a name being associated with it.

Enter a name to identify the phone number. (See the following section for details on entering names.)

- 5 If you entered a name, press  or  when you are finished. Your phone confirms your entry by displaying the information you stored.

How to Enter Letters and Numbers

When the display shows Alpha On *, you can press the numeric keys one or more times to produce any letter or number in the alphabet. Use the letters printed on each key as a guide. For example, press **2** to enter "A," "B," "C," or "2" as shown:



How to Enter a Name

Press the upper or lower volume key first, to toggle between upper and lower case letters.

- 1 Enter a letter by pressing a key as many times as necessary. Enter punctuation by pressing **1** as many times as indicated by the chart below. Pressing **1** a single time produces a single space.

Number of times to push 1	2	3	4	5	6	7	8	9	10
Character displayed	1	/	'	~	?	\$	.	&	!

The cursor advances automatically to the next space after you enter a letter or after three seconds of inactivity. If you are repeating a character, then press **#>** to advance the cursor to the next space.

- 2 Press **←*** or **CLEAR** to erase a letter if you make an error.
- 3 Press **0** or **STORE** when you finish entering the name.

Your phone confirms your entry by displaying the information you stored.

Recalling an Entry by Name

After storing names and numbers, you can recall them alphabetically and immediately place calls. Use the Smart Button for instant access to the name directory.

- 1 Press **0** once to enter your name directory.
- 2 Press **00** to scroll to the name you are looking for.
or

Enter the first letter of the name you want to recall. The display shows the first name in the phone book that begins with that letter. If no entry beginning with that letter is found, No A's is displayed.

When the name is displayed, the corresponding number is displayed on a third line, and the phone memory location is displayed in the upper right corner.

- 3 Press and hold **0**, or press **SND**, to call the number you selected.

Recalling an Entry by Memory Location

Each name and number you store is placed in a memory location numbered 01-99. Once you have stored names and numbers, you can recall them by memory location:

- 1 Press **RCL**.
- 2 Enter the two-digit memory location of the phone number you want.
- 3 Press and hold **0**, or press **SND** to call the number you selected.

Editing a Memory Location

After you store names and numbers in the Phone Book, you can edit the information or erase entries at any time.

- 1 Select **Edi+**.
- 2 Recall the entry by location or by name.
(See "Recalling an Entry by Name" and "Recalling an Entry by Location" on page 30.)
- 3 Press **⓪** to begin editing the phone number.
The display shows the name briefly, then the phone number.
- 4 Press **⓪** to erase one digit at a time.
Press and hold **⓪** to erase the entire number.
- 5 Enter your changes to the phone number.
- 6 Press **⓪** when you finish editing the phone number.
The display shows the location where your number is currently stored.
- 7 Press **⓪** to erase the memory location, then enter a new two-digit location.
or
*Press **⓪** to keep the phone number in its current location.*
The display shows the name stored with the phone number you are editing.
- 8 Enter your changes to the name. (See "How to Enter a Name" on page 22.)
Press **⓪** to erase one letter at a time, or skip to step 9 to leave the name unchanged.
- 9 Press **⓪** when you finish editing the name. The display shows the new information.

- 10 Press **⓪** to save your changes.

Your phone confirms your entry by displaying the location, number, and name you stored.

or

Press **⓪** to leave the information unchanged.

When you see **Location** _____, enter a new two-digit memory location to avoid overwriting the information in the current location.

- 11 Press **⓪** to exit, or scroll to other features.

Clearing a Phone Memory Entry

Clearing an Entry by Name

- 1 Recall by name the entry that you want to erase. (See "Recalling an Entry by Name" on page 22.)
- 2 Press **⓪** to clear the entry.
You will see **Clear Entry?**.
- 3 Press **⓪** or **⓪** to confirm that you want to erase the entry.
The numbered location of the cleared entry is shown in the display.

Clearing an Entry by Location Number

- 1 Recall by location the entry that you want to erase.
- 2 Press **⓪** to clear the display.
- 3 Press **⓪** and the location you want to clear.
You will see **XX Full Change?**
- 4 Press **⓪** to confirm that you want to erase the entry.
To edit an entry in the phone book, see "Editing a Memory Location".



Shortcuts for Recalling Phone Book Entries

Using Speed Dial

If you know the memory location of the number you want to call, try the Speed Dial function:

- 1 Enter the two-digit memory location (01-99).
- 2 Press and hold  until you hear a two tone alert , or press  to place the call.



Using the Turbo Dial™ Function

The Turbo Dial™ function enables you to dial numbers stored in locations 01-09 with the push of a single button:

Press and hold a number  -  on the keypad. You will hear a two-tone alert and then your call will be placed.

Your phone's Priority Call feature gives you fast access to any number stored in location 01. To learn more about this feature, see "Activating Priority Calling" on page 41.

Making Notes on the Scratchpad

In addition to your internal phone book, you also have a built-in scratchpad for making quick notes. The scratchpad remembers the last phone number shown on your display.

Entering a Number in the Scratchpad

If you are on the phone and your party gives you another number to call, enter the number on the scratchpad so you can place the call later.

- 1 Enter the number into the keypad. (The person on the line can hear tones as you dial.)
- 2 Press  to end the current call, if necessary.
- 3 Press  to call the number you saved on the Scratchpad.

Storing Numbers During a Call

You can also store numbers during a call:

- 1 Enter the number into the keypad. (The person on the line can hear tones as you dial.)
- 2 Press  and continue storing with step 3 in "Storing Names and Numbers" on page 21.

Using the Menu Features

Using the Menu System

Your cellular phone includes many features to help you be more productive. The phone's user-friendly menu system helps you find what you need quickly and easily.

In this section you will learn:

- what are the main menu features
- how to navigate through the menus
- how to read a menu road map

Introducing the Menu Features

As you scroll through the menu system, you will see the following icons, each representing a high-level menu.



Recent Calls



Phone Book



Timers



Tone Control



Lock Secure



Phone Options

 The Menu Features can also be accessed by pressing **FCN** **1** or **FCN** **0**.

Navigating the Menu

You can navigate through the menu system using the volume keys located on the left side of the phone and the Smart Button located on the right side of the phone. Use the upper and lower

volume keys to scroll to sub-menus. Use the Smart Button to choose menus and functions.

Follow these symbols as a guide for using the keys on the side of your phone:

Press  to scroll up.

Press  to scroll down.

Press  to select.

You can also use your phone's  and  keys to scroll through the menu system.



Road Maps

To help you navigate through your phone's menu system, each section begins with an easy-to-follow visual "road map." To enter the menu features:

1 Press **FCN** .

or

Press **FCN** **1**.

"menu" is printed on the **1** key as a reminder.

2 Press  to scroll through the menu's top level

3 Press **END** to exit the menu.

Detailed instructions within each section describe how each feature works.

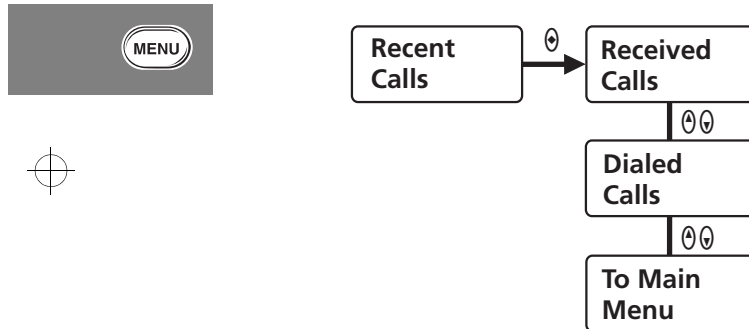


Managing Recent Calls

The recent calls menu option allows you to access your Caller Line ID and review previous calls.

In this section you will learn how to review all calls that you have received or dialed.

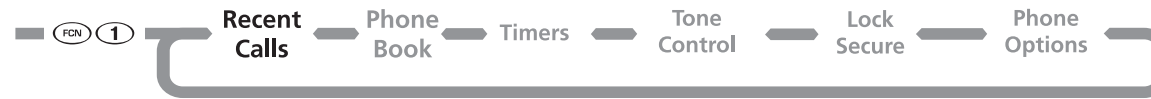
Start:



About Recent Calls

The Recent Calls menu allows you to review previous calls that you have received or dialed. Following are some useful tips and information about reviewing recent calls.

- Your cellular phone can store the telephone numbers and names of the last thirty incoming calls.
- If the caller's phone number matches a phone number stored in the phone's memory, the phone automatically displays the name associated with that phone number.
- If you subscribe to call waiting and receive a call while another call is in progress, you hear a call waiting tone, and the caller's name and number appear on the display. The name and number are automatically stored and can be viewed after ending the call, using the procedure described in "Reviewing Received Call" on page 27.
- Caller Line ID allows you to view the name and number of the calling party in the phone's display while the phone is ringing. Caller Line ID is an optional feature that is not available in all markets. Contact your Service Provider for availability information.
- If the caller has restricted transmission of the phone number, your phone displays *Anonymous*. If the Calling Number ID information is not available to the cellular network, your phone displays *Unavailable*.



- You can store any number contained in your Caller Line ID memory to a memory location in the same way you would save any phone number. Once the correct number is displayed, press **STORE** and a memory location or **STORE** **↵** to autoload. See "Storing with the Menu" on page 30 for more information on storing phone numbers.
- The number of received calls is displayed when you select Received Calls. However, if a call is private or has no Caller Line ID number, then its actual phone number is not displayed and will not be included in the count of missed calls.

Reviewing Received Call

Press **RCL** **RCL** to view your received calls. You must hold the second **RCL** until the received call list is displayed.

- 1 Select **Received Calls**. The total numbers of received calls stored is displayed in the upper right corner. If there are no numbers in the Caller Line ID list, you will see 00 in the upper right corner.

- 2 Press **0** to enter your Caller Line ID list of received calls.

- 3 Press **00** to scroll through the list.

The display shows the order in which the call was received in the upper right corner, with the phone number and name of the calling party (if available).

The received call list can range from 01 (the most recent previous phone call) to 30 (the least recent phone call).

The following symbols appear next to the received calls:

Answered

Missed

- 4 Press **SND** to dial the displayed number.





Reviewing Dialed Calls

Press **RCL** **0** **0** to enter your dialed calls list.

1 Select Dialed Calls.

The total number of dialed calls that are stored is displayed in the upper right corner (below the battery symbol). You can see up to the last twenty numbers dialed. If there are no numbers in the Dialed Call list, you will see 00.

2 Press **0** to enter your dialed calls list.

3 Press **00** or **←*#→** to scroll through the list. The dialed call list can range from 01 (the most recent dialed phone call) to 20 (the least recent dialed phone call).

The display shows the order of the previously dialed phone call in the upper right corner, with the phone number and name (if available) of the party called.

4 Press **SND** to dial the displayed number.

Clearing Caller Line ID

To erase **all** entries you must press and hold **CLEAR**, whereas to erase a **single** entry you simply press **CLEAR**.

To **erase all entries** saved in your Caller Line ID memory:

1 Select Received Calls.

2 Press and hold **CLEAR** when a Caller Line ID name and number is displayed. You will see Clear All?.

3 Press **0** or **STORE** to clear.

or

Press **END** to leave your Caller Line ID memory intact. You will see Entry Not Cleared.

To **erase a single entry** saved in your Caller Line ID memory:

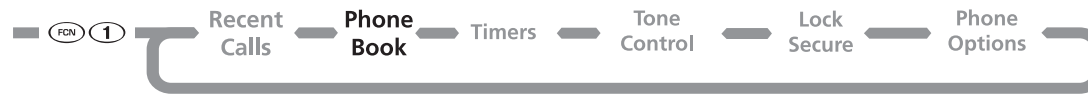
1 Press **CLEAR** when a Caller Line ID name and number is displayed. You will see Clear Entry?.

2 Press **0** or **STORE** to clear.

or

Press **END** to leave your Caller Line ID memory intact.

Caller Line ID is an optional network and subscription feature that is not available in all areas.



Managing the Phone Book

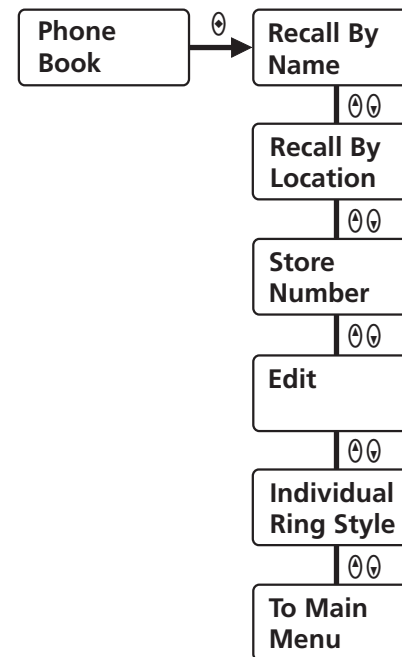
In “Using Phone Memory” you learned how to store and recall phone numbers with the internal Phone Book. You can access the same features, along with several advanced features, using your phone’s convenient menu system.

In this section you will learn how to:

- recall and store phone numbers using the menu system
- store numbers with pause dialing
- store calling card sequences for easy access
- edit your memory information
- select the individual ringer style

 You can also recall phone numbers without using the Phone Book. See “Recalling an Entry by Name” on page 22 or “Recalling an Entry by Memory Location” on page 22.

Start:





Recalling an Entry by Name

To recall a stored name with the Phone Book menu:

- 1 Select Recall By Name. You will see Enter 1st Letter.
- 2 Enter the first letter of the name you want to recall. The display shows the first name in the phone book that begins with that letter. If no entry beginning with that letter is found, No A's is displayed.
- 3 Press to scroll to the name you want.
- 4 Press and hold , or press to call the number you selected.

Recalling an Entry by Location

Each name and number you store is placed in a memory location numbered 01-99. After storing names and numbers, you can recall them by memory location with the Phone Book menu.

- 1 Select Recall By Location. You will see Location ____.
- 2 Enter the two-digit memory location of the number you want.
- 3 Press and hold , or press , to call the number you selected.

Storing with the Menu

Use the phone's menu system to store names and numbers into the Phone Book.

- 1 Select Store Number. You will see Enter Number.
- 2 Enter the phone number you want to store. See "How to Enter Letters and Numbers" on page 22.
- 3 Press when you finish entering the number. You will see Location ____.
- 4 Press to store the sequence in the next available location. or

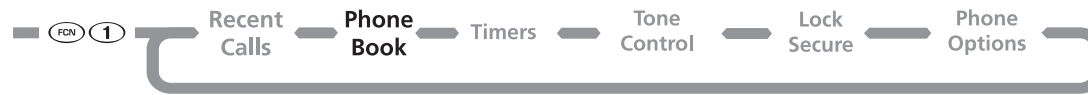
Enter the first digit of the memory location and press to store the sequence in the first available location beginning with that digit.

or

Enter the two-digit memory location where you want the sequence stored.

If the chosen location is full, press and restart the storing sequence.

- 5 You will see Enter Name: . Enter a name to identify the phone number, or skip this step and continue with step 6. (See "How to Enter a Name" on page 22 for details on entering names.)
- 6 Press , or , when you finish entering the name. Your phone confirms your entry by displaying the location, number, and name you stored. Proceed with step 7 below, or return to step 2 above to store more numbers.
- 7 Press to exit the menu.



Storing and Placing Numbers with Pause Dialing

Entering a Pause in a Number

When you call automated systems, a recorded message prompts you for PIN numbers, Voice Mail numbers, etc.

You can store these numbers in your phone's memory, separated by "pauses"—special characters that tell your phone to wait before sending additional numbers.

- 1 Select **Store Number**. You will see **Enter Number**.
- 2 Enter the phone number you use to access the automated system.
- 3 Press **FCN**, then press **SND**.
You will see **Insert Wait o**.
- 4 Press **o** to insert a pause (**o**) into the sequence.
- 5 Enter the next group of numbers (such as an account number or PIN number.)
- 6 Enter any other required symbols (such as * or #).
- 7 Insert another pause, and enter the next group of numbers by repeating steps 3 through 5 as many times as necessary.
You can store up to 32 digits, including pauses. Then store the entire sequence as you would any phone number.
- 8 Press **STORE** to begin storing.
You will see **Location ____**.

- 9 Enter the two-digit memory location where you want the sequence stored.

You will see **Enter Name :**.

- 10 Enter a name for your sequence.
(See "How to Enter a Name" on page 22 for details on entering names.)

- 11 Press **o** when you finish entering the name.
Your phone confirms your entry by displaying the location, number, and name you stored.

Placing a Call with Pauses

To use your stored sequence:

- 1 Recall the stored number with the pause inserted.
- 2 Press and hold **o**, or press **SND**, to place the call.
- 3 When the recording prompts you for information, press **o** or **SND** to send the next set of stored numbers.
- 4 Press **o** or press **SND** as many times as necessary, to transmit all the numbers.





Storing and Placing Numbers for Calling Card Information

Storing Calling Card Information

Like Pause Dialing, you can store calling card access numbers, separated by pauses, for recall later. You can also store a Number Character in the sequence to save a place for the number you call when you use your calling card.

See "Using Lock/Security Features" on page 39 for more information on protecting your calling card information.



- 1 Select **Store Number**. You will see **Enter Number**.
- 2 Enter the phone number you use to access your calling card system. (Skip this step if you only dial 0.)
- 3 Press **FCN** **SND**. You will see **Insert Wait 0**.
- 4 Press **0** to insert a pause (0) into the sequence.
- 5 Enter the next numbers, if needed. (For example, some long distance carriers require you to dial a 0 first. If no further numbers are needed, skip to step 7.)
- 6 Press **FCN** **SND**.
- 7 Press **0** to scroll to the **Number Character**. You will see **Insert Number ^N**.
- 8 Press **0** to insert the ^N Character.
This special character saves a place for the phone number you will be calling. The number is inserted automatically when you place the call.
- 9 Press **FCN** **SND**.
- 10 Press **0** to insert another pause, as in steps 3 and 4.

11 Enter your calling card PIN number.

12 Press **STORE** to store your calling card sequence.

You will see **Location** ____.

13 Enter the two-digit memory location where you want the sequence stored.

You will see **Enter Name** : .

14 Enter a name for your sequence. (See "How to Enter a Name" on page 22 for details on entering names.)

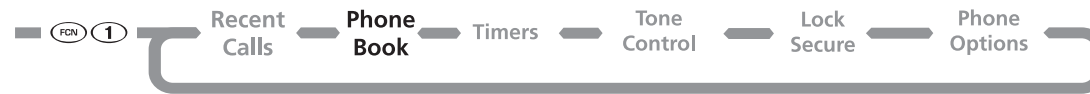
15 Press **0** when you are finished entering the name.

Your phone confirms your entry by displaying the location, number, and name you stored.

Placing a Calling Card Call

To recall your stored calling card information:

- 1 Recall the calling card information you stored.
(See "Recalling an Entry by Name" and "Recalling an Entry by Location" on page 30 for more information on Recalling Numbers.)
- 2 Press **SND** before entering the number. You will see **Enter Number**.
- 3 Enter the phone number you want to call, including the area code.
Enter the number manually, by location, or recall.
- 4 Press and hold **0**, or press **SND**, to place the call.
Your phone dials the number to access your long distance provider.



- 5 Press **0**, or press **END**, to send the next group of numbers when you are prompted.
The phone automatically inserts the selected number to call at the appropriate time in the sequence.
- 6 Repeat step 5 to send the next group of numbers as many times as necessary.

Assigning an Individual Ring Style to a Phone Book Entry

You can use the individual ring style feature to assign one of nine ring styles to alert you of an incoming call from a phone number listed in your phone book.

 *This feature will only operate if you subscribe to Caller ID from your service provider. Caller ID is not available in all areas.*

- 1 Follow the steps in "Adjusting Tone Controls" to select Individual Ring Style.
- 2 Select the phone book entry to which you want to assign an individual ring style.
 - a. Enter the first letter of the name entry associated with the phone number.
 - b. Scroll up and down to reach the desired phone book entry.
- 3 When you reach the phone number you want, select it by pressing **0** or **STORE**.
The display will show Press 0-9, 0=OFF.
- 4 Press **0** to assign the default ring style for the number.
or

Press an entry from **1** to **9** to select one of the nine ring styles.

- 5 Press **0** or **STORE** to select that ring style.
The display confirms the selection by showing Ring Style Assigned.
- 6 press **END** to exit, or scroll to other features.





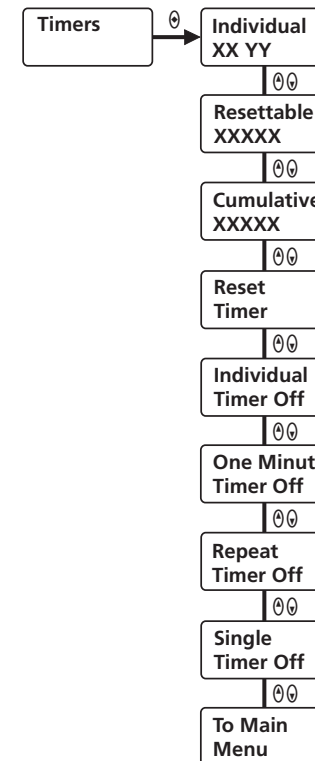
Timing Your Calls

Your phone's Call Timers give you a variety of options for managing your time. You can monitor the length of individual calls, set a timer to track monthly usage, or have the phone alert you at intervals that you specify.

In this section you will learn how to:

- view the timers
- monitor the length of your calls
- set and view the resettable timer for long-term monitoring
- program audible timers for your individual needs

Start:





Viewing the Individual Call Timer

Press **RCL** **#>** **#>** for a quick look at this timer.

You can view the air-time of the most recent call or the call in progress (in minutes and seconds) at any time using this feature. The Individual Call Timer resets when you place the next call and when you turn the phone off. You can also choose to have the timer display while calls are in progress. See "Displaying the Individual Timer Automatically" on page 35.

- 1 Select **Individual XX YY**. The display shows the air-time of your last call in minutes (XX) and seconds (YY).
- 2 Press **END** to exit, or scroll to other features.

Viewing the Resettable Call Timer

Press **RCL** **#>** **#>** **#>** for a quick look at this timer.

You can track how much air time you have accumulated at any time. Use this feature to view the time elapsed.

- 1 Select **Resettable XXXXX**. The display shows your air time in minutes since you last reset the timer.
- 2 Press **END** to exit, or scroll to other features.

Viewing the Cumulative Timer

Press **RCL** **#>** **#>** **#>** **#>** for a quick look at this timer.

This is a non-resettable timer that keeps track of your phone's total air time (in minutes).

- 1 Select **Cumulative XXXXX**. The display shows your air time in minutes since your phone was activated.
- 2 Press **END** to exit, or scroll to other features.

Resetting the Timer

By resetting this timer at the beginning of each billing cycle, you can keep a running tab of your monthly usage. After you reset the timer, it continues to keep track of your air time (in minutes) until you reset it again.

- 1 Select **Reset Timer**.
- 2 Press **0** to reset the timer.
- 3 Press **END** to exit, or scroll to other features.

MENU

Displaying the Individual Timer Automatically

Activating the Individual Timer may reduce both standby and talk times.

When you turn this feature on, your phone automatically displays your air time in minutes (XX) and seconds (YY) during and after each call.

- 1 Select **Individual Timer On/Off** (depending on the current state). Once the desired setting is selected, you will see **Individual Timer Off** or **Individual Timer On**.
- 2 Press **0** to toggle between **Individual Timer Off** and **Individual Timer On**.
- 3 Press **END** to exit, or scroll to other features.



Setting the One-Minute Audible Timer

Activate this feature to hear an audible beep 10 seconds before the end of every minute during a call. The party on the other end does not hear the beeps.

- 1 Select One Minute Timer. You will see One Minute Timer Off or One Minute Timer On.
- 2 Press to toggle between One Minute Timer Off and One Minute Timer On.
- 3 Press to exit, or scroll to other features.

Setting the Repeating Audible Timer

You can set this timer to beep during your calls at an interval that you select—from 11-999 seconds. You will hear the beep 10 seconds before the end of each interval, but the party on the other end does not hear the beeps.

- 1 Select Repeat Timer. You will see Repeat Timer Off or Repeat Timer On.
- 2 Press to toggle between Repeat Timer Off and Repeat Timer On.

The prompt to enter seconds appears **only** if you have turned the feature on. If you have turned it off, you will see Repeat Timer Off.

- 3 Enter the number of seconds you would like between audible beeps. You will see Beep At YYY Secs.
- 4 Press to set the timer. The phone confirms the setting by displaying Set At YYY Secs.
- 5 Press to exit, or scroll to other features.

Setting the Single Timer

Like the Repeating Timer, you can set the Single Timer to beep at a time that you select—from 11-999 seconds. It beeps once during each call, 10 seconds before the end of the interval. The party on the other end does not hear the beep.

- 1 Select Single Timer. You will see Single Timer Off or Single Timer On.
- 2 Press to toggle between Single Timer Off and Single Timer On.

The prompt to enter seconds appears **only** if you have turned the feature on. If you have turned it on, you will see Single Timer Off.

- 3 Enter the number of seconds you would like between audible beeps. You will see Beep At YYY Secs.
- 4 Press to set the timer. The phone confirms the setting by displaying Set At YYY Secs.
- 5 Press to exit, or scroll to other features.



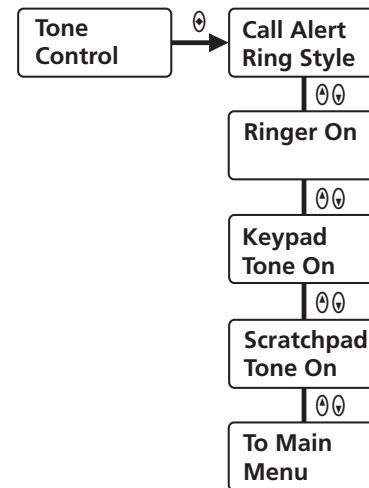
Adjusting Tone Controls

Use these features to personalize your phone's ringer styles, or turn the ringer off.

In this section you will learn how to:

- choose from nine different ringer styles
- turn the ringer on or off
- silence the keypad
- silence the scratchpad

Start:





Selecting a Ring Style

Your phone lets you select any of nine different ring styles. After you choose a style, the phone gives you a brief sample of the new ring style.

- 1 Select Call Alert Ring Style.
- 2 Press **1** through **9** to hear the different ring styles, or scroll through the ring styles. Ring Style 1 is the default setting.
- 3 Press **0** when you reach the ring style you want.
The display will show Ring Style X Set.
- 4 Press **END** to exit, or scroll to other features.

Turning Ringer On and Off

- 1 Press **0** to toggle the ringer on or off.

Turning Keypad Tones On and Off

Keypad tones are the sounds you hear when you press any key on the phone. By default, keypad tones are turned on. If you want to be discreet, use this feature to silence the audio feedback from the keypad.

The other party still hears tones.

- 1 Select Keypad Tone. You will see Keypad Tone On or Keypad Tone Off.
- 2 Press **0** to toggle between Keypad Tone On and Keypad Tone Off.
- 3 Press **END** to exit, or scroll to other features.

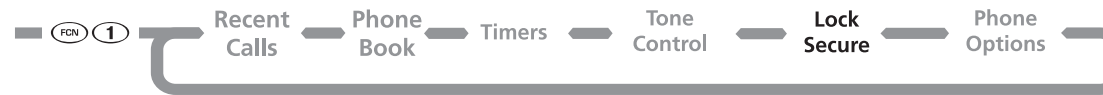
Turning Scratchpad Tones On and Off

Scratchpad tones are the tones that your phone sends to access automated calling systems like Voice Mail. By default, scratchpad tones are turned on. If you don't want your party to hear these sounds when you use the scratchpad, turn the scratchpad tones off.

- 1 Select Scratchpad Tone. You will see Scratchpad Tone On or Scratchpad Tone Off.
- 2 Press **0** to toggle between Scratchpad Tone On and Scratchpad Tone Off.
- 3 Press **END** to exit, or scroll to other features.

If you turned the scratchpad tones off but want to access a tone-activated system like Voice Mail, place the call, enter the numbers you need to transmit, then:

Press **RCL** **END** to send the tones.



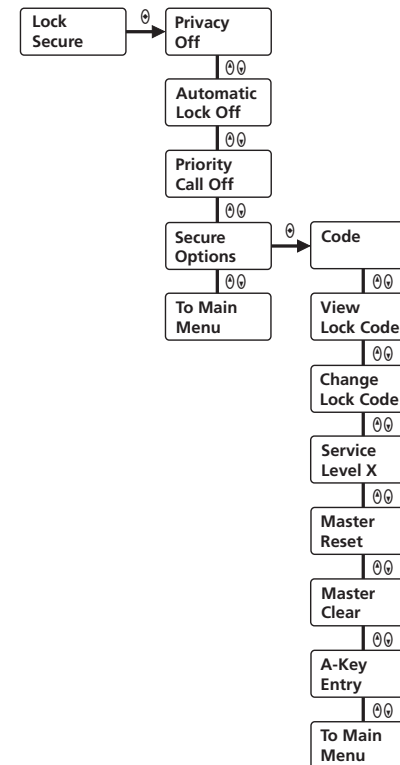
Using Lock/Security Features

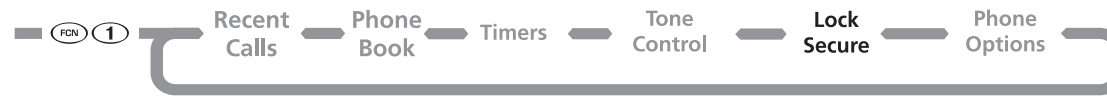
While you probably would not want to leave your phone unattended, your phone has a number of built-in security features to prevent unauthorized use.

In this section you will learn how to:

- activate the Voice Privacy feature
- lock and unlock your phone
- place priority calls
- change your lock code
- restrict call placement and memory access
- reset or clear your phone's settings

Start:





Activating Voice Privacy

Network and subscription dependant feature. Not available in all areas.

When you activate your phone's Voice Privacy feature, you request your cellular system to search for a Voice Privacy channel with each call. If no Voice Privacy channel is available (or your call is "handed off" to a cell where a Voice Privacy channel is not available), five short beeps alert you that the call is no longer private.

You must select the Voice Privacy feature before you make a call in order for that call to search for a Voice Privacy channel.

This feature is not available in all markets. Contact your Service Provider for additional information about your service area.

To turn the Voice Privacy feature on or off:

- 1 Select Voice Privacy. You will see `Privacy Off` or `Privacy Preferred`.
- 2 Press to toggle between `Privacy Off` and `Privacy Preferred`.
- 3 Press to exit, or scroll to other features.

Locking/Unlocking Your Phone

For your protection, you must enter the six-digit security code to access the features that your phone contains. The factory-programmed lock code for unlocking the phone is 123. The six-digit security code is 000000. These may have been changed when your phone was activated.

Locking Your Phone Automatically

Press , the Smart Button, , , and continue with step 2.

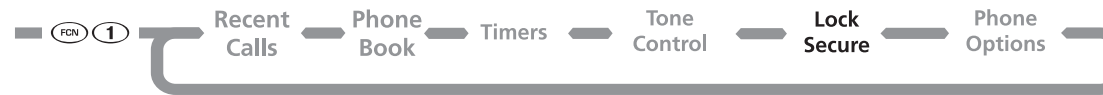
When you turn this feature on, your phone automatically locks itself each time you turn it off.

- 1 Select `Automatic Lock`. You will see `Automatic Lock Off` or `Automatic Lock On`.
- 2 Press to toggle between `Automatic Lock Off` and `Automatic Lock On`.
- 3 Press to exit, or scroll to other features.

Locking Your Phone Manually

You can lock your phone manually at any time to prevent unwanted use. Once you lock the phone, it remains locked whether it is powered on or off.

- 1 Press .
- 2 Press and hold for at least one full second. You will see `Lock?`.
- "LOCK" is printed on the key, as a reminder.
- 3 Press or to lock. You will see `Locked`.



Unlocking Your Phone

To unlock your phone:

Once your phone is on, **enter your three-digit lock code** to unlock your phone. (See "Viewing the Lock Code" on page 41 and "Changing the Lock Code" on page 41 for more information on your lock code.)

Answering Calls While the Phone Is Locked

You can still receive calls when the phone is locked. To answer an incoming call:

- 1 Enter your three-digit lock code.
- 2 Press and hold **0**, or press **END** to receive the call.

If you forget your lock code, try pressing **1** **2** **3** or the last three digits of your cellular phone number.

Activating Priority Calling

Press **FCN**, the Smart Button, **2** **9**, and continue with step 2.

Priority Call allows the Turbo Dial™ function to dial from memory location 01—even when the phone is locked. You can store an emergency number or the number of someone you would like to contact in case of emergency.

Some cellular systems have their own emergency numbers and deny access to emergency numbers like 911 (not available in some areas). Check with your Service Provider for more information.

By default, Priority Call is activated. To turn it off or to switch it back on, complete the following steps:

- 1 Select **Priority Call**. You will see **Priority Call Off** or **Priority Call On**.
- 2 Press **0** to toggle between **Priority Call Off** and **Priority Call On**.
- 3 Press **END** to exit, or scroll to other features.

Viewing the Lock Code

To display the active three-digit lock code:

- 1 Select **Secure Options** and enter your six-digit security code.
- 2 Select **View Lock Code**. You will see **View Lock Code**.
- 3 Press **0** to display your three-digit lock code. The code appears for a few seconds.
- 4 Press **END** to exit, or scroll to other features.

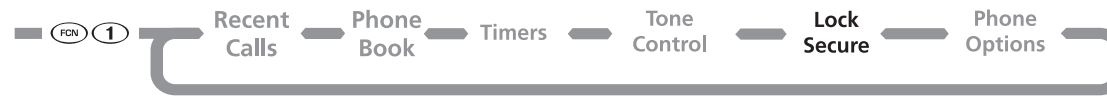
The Standard Factory default for the six-digit security code is 000000, and for the three-digit lock code it is 123.

Changing the Lock Code

To change your three-digit lock code:

- 1 Select **Secure Options** and enter your six-digit security code.
- 2 Select **Change Lock Code**. You will see **Enter Code** ____.
- 3 Enter the new three-digit code. You will see **Changed To XXX**.
- 4 Press **END** to exit, or scroll to other features.





If you try to change your lock code to 911 or the first three digits of an emergency number, you will see *Code Invalid*, and the code you entered **will not** be accepted. You will return to step 1 above.

Restricting Call Placement

Network and subscription dependant feature. Not available in all areas.

You may want to restrict call placement or hide memory information when loaning your phone to others.

MENU

Selecting a Service Level

- 1 Select *Secure Options* and enter your six-digit security code.
- 2 Select *Service Level*. The phone displays your current service level. Refer to the chart on the next page.
- 3 Press **00** to scroll through the service level settings, and press **0** to select the service level you want.

If you select Level 7, the phone prompts you for the range of memory locations you want to remain active. You will see *Range 1---*.

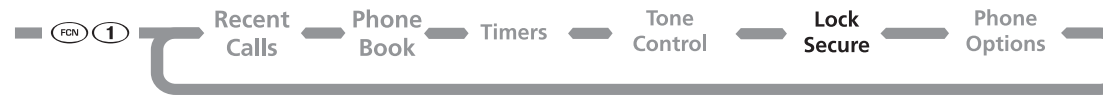
Enter the range of digits memory locations from which calls are allowed. The phone confirms the allowed range, and you will see *1-XX Allowed*.

- 4 Press **END** to exit, or scroll to other features.

Service Level Settings

Each of your phone's eight service levels offers a different combination of access privileges and restriction.

Level	Description	Display
1	• Calls can be placed from memory locations 1-10 only. • No dialing from keypad • No memory edit or storage • No access to name directory • No access to last number dialed	1 Memory 1-10
2	• Calls can be placed from all memory locations. • No dialing from keypad • No memory edit or storage • No access to Caller Line ID stack or Last Number Dialed	2 Memory Only
3	• Calls can be placed manually from the keypad only. • No access to memory information • No memory edit or storage • No access to Caller Line ID stack or Last Number Dialed	3 Keypad Only
4	Standard setting, no restrictions	4 Standard Setting
5	Seven-digit (local) dialing only	5 Local Only



Level	Description	Display
6	- Calls can be placed from the keypad and from memory. - No edit or memory storage to memory locations 1-10	6 No Store 1-10
7	- Calls can be placed from a selected memory range only. - Memory edit and storage allowed with the selected range. - No access to name directory	7 Allow Range
8	No edit, storage, or recall from memory locations 1-9	8 Hide Turbo

Resetting All Options

Use the Master Reset feature to reset all user-selectable options back to their original factory settings.

Once you select this feature, the reset process cannot be canceled or reversed.

- 1 Select **Secure Options** and enter your six-digit security code.
- 2 Select **Master Reset**.
- 3 Press **0** if you want to reset all your phone's options back to their factory settings. You will see **Standard Setting**.

or

Press **END** to exit the menu if you do not want to reset your phone's options.

- 4 Press **END** to exit, or scroll to other features.

Clearing All Stored Information

If you want to start over, use Master Clear to reset all user-selectable options, clear the resettable timer, and erase all Phone Book information.

Once you select this feature, the process cannot be canceled or reversed.

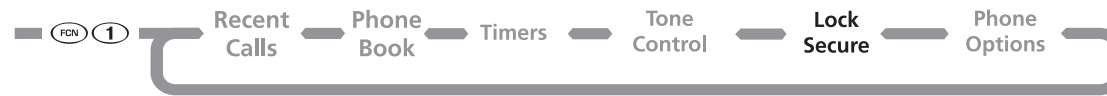
- 1 Select **Secure Options** and enter your six-digit security code.
- 2 Select **Master Clear**.
- 3 Press **0** to clear the memory and reset all your phone's options back to their factory settings. You will see **Busy**. (This takes a few seconds.)

or

Press **END** to exit the menu if you do not want to reset your phone's options.

- 4 Press **END** to exit, or scroll to other features.





Authenticating Users

Your phone is equipped with an authentication feature called the A-Key, which acts like a PIN number and helps prevent unauthorized use of your phone. Contact your Service Provider for your personalized A-Key number.

This feature should only be programmed once.

- 1 Select A-Key Entry. The display shows the phone's active phone number.

If the number displayed is not the number you want for the A-Key, press or to switch to the second programmed number. Your phone uses this number once you exit this feature.

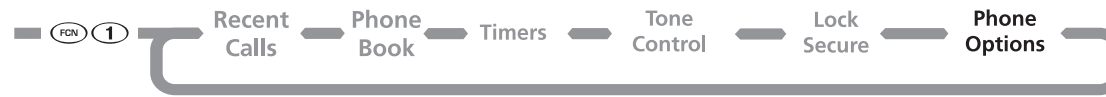
- 2 Press to select.

Enter the 6- to 26-digit A-Key number as supplied by your Service Provider. Press to correct errors.

- 3 Press or to validate the A-Key entry.

- If you enter the A-Key correctly, you will see *Valid*.
- If you enter the A-key input incorrectly, you will see *Invalid*. Re-enter your A-Key.

- 4 Press to exit, or scroll to other features.



Customizing Phone Options

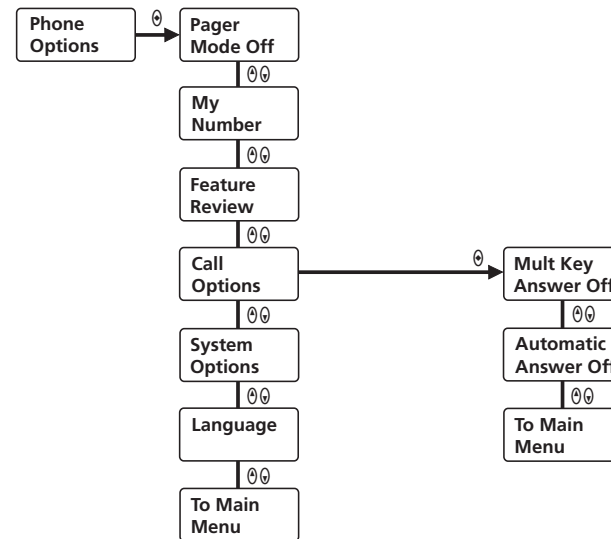
The Phone Options menu lets you customize the way your phone sends and receives calls.

You can tune your phone for optimal performance, view information about the phone, and choose from a number of convenient features.

In this section you will learn how to:

- activate pager mode
- view your own phone number
- select the type of cellular system
- review your phone's feature settings
- select features for vehicular use
- display your system identification
- select a language

Start:





Activating Pager Mode

When Pager Mode is activated, the phone simulates a pager. Pager Mode suppresses incoming call alerts but leaves message alerts active. The following conditions occur:

- Voice call alerts are suppressed.
- Message alerts are allowed.

By default, Pager Mode is turned off. Complete the following steps to turn Pager Mode on and off.

- 1 Select **Pager Mode on/off**. The display shows your current Pager Mode setting.
- 2 Press **0** to toggle between Pager Mode on and off.
- 3 Press **END** to exit, or scroll to other features.

Viewing Your Own Number

 Press **RCL** **#>** for a quick look at your phone number.

Use this feature to view your phone's currently active phone number.

- 1 Select **My Number**.
- 2 Press **0** to view your own phone number.
Your active phone number appears on the screen. After six seconds, the phone returns to step 1.
- 3 Press **END** to exit, or scroll to other features.

Reviewing Feature Settings

Use this feature to review the changes you've made to feature settings.

 While scrolling through **Feature Review**, you can only review settings. You cannot change them.

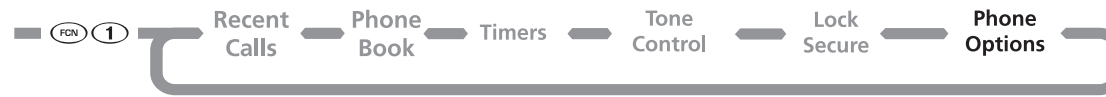
- 1 Select **Feature Review**.
- 2 Press **0**, or press **<*** or **#>** to scroll through features you changed from their default settings.
If all of the features are set to the factory standard settings, the display shows **Standard Setting**.
- 3 Press **END** to exit the menu.

Call options

Activating Multiple Key Answer

Turn on the Multiple Key Answer feature to answer calls by pressing the Smart Button, or any key on the upper keypad with the exception of the power key **0**.

- 1 Select **Multi Key Answer**. You will see **Multi Key Answer On** or **Multi Key Answer Off**.
- 2 Press **0** to toggle between **Multi Key Answer On** and **Multi Key Answer Off**.
- 3 Press **END** to exit, or scroll to other features.



Activating Automatic Answer

Turn Auto Answer on to have your phone automatically answer incoming calls after two rings.

Auto Answer does not work if Pager Mode is activated.

- 1 Select Automatic Answer. You will see Automatic Answer On or Automatic Answer Off.
- 2 Press to toggle between Automatic Answer On and Automatic Answer Off.
- 3 Press to exit, or scroll to other features.

Displaying System Identification

This feature shows the System ID number that identifies the cellular system your phone is currently accessing. An even number indicates a wireline system, while an odd number indicates a non-wireline system.

- 1 Select the System Options sub-menu. You will see Display SID.
- 2 Press to view the System ID number. After six seconds, the phone goes back to step 1.
- 3 Press to exit, or scroll to other features.

Selecting Language

This feature enables you to select the language in which your phone displays prompts and messages.

- 1 Select the Language sub-menu.
- 2 Press to scroll through the language options. The choices include English, Spanish, French, Portuguese, Hebrew, and Russian. English, Espanol, Francais, Português, Hebrew, and Russian.
- 3 Press to select the language setting you want.
- 4 Press to exit, or scroll to other features.





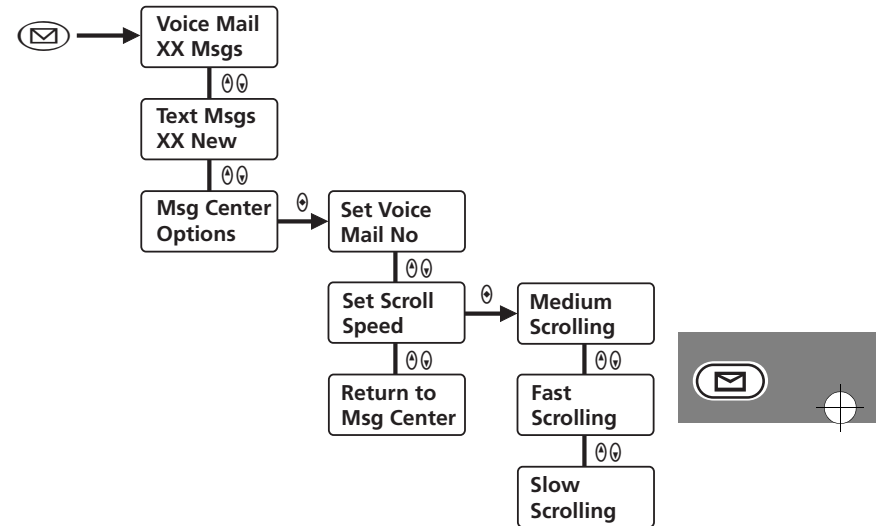
Using the Message Center

 Network and subscription dependant feature. Not available in all areas.

The Message Center gives you easy access to both voice mail and your text messages. In this section you will learn how to:

- use voice mail
- edit a phone number to access voice mail
- use short messaging services (SMS) to view, lock/unlock, and clear messages
- adjust speed of your scrolling messages

Start:



Voice Mail Alerts

This feature updates you each time a message is sent to your voice mail number, providing you with real-time information on messages waiting to be retrieved.

When a voice mail message is received:

- Voice Mail XX Msgs appears.
- The  icon appears.
- The phone beeps three times for a message.

Dialing Voice Mail

You can retrieve your voice mail messages in one of two ways.

From the Voice Mail Alert Screen

When you receive a voice mail alert and the Voice Mail XX message appears, press  to dial your voice mail number.

Your access number for the voice mail center is dialed automatically, and Dialing XXXX appears on the display, where XXXX is your access number.

From the Message Center

- 1 Press .
- 2 Press  or  to dial your voice mail number.

Your access number for the voice mail center is dialed automatically, and Dialing XXXX appears on the display, where XXXX is your access number.

Editing the Voice Mail Number

This feature allows you to save your voice mail access number.

 When you receive your phone, the default voice mail number is your phone number.

- 1 Press  to enter the message center.
- 2 Select **Msg Center Options**.
- 3 Select **Set Voice Mail No.**
- 4 Enter your voice mail number.
The digits appear as you enter them.
- 5 Press  or .

A message confirms that your number has been saved.

 If you subscribe to a system that provides a shortcut number for voice mail, enter the complete number—not the shortcut number.

- 6 Press  to exit, or scroll to other features.

Reading Text Messages

 *Network and subscription dependant feature. Not available in all areas.*

Some Service Providers let you subscribe to a Short Message Service (SMS), which allows you to receive alphanumeric messages on your phone, just like a pager. Contact your Service Provider for information about the availability of messaging in your area.

SMS enables your phone to save up to 15 short messages, each up to 80 characters in length, or five full-length 239-character messages.

Your phone automatically replaces the oldest messages with the newest as they are received. You can store Call Back messages and numbers for later review. The one-touch Message Button makes viewing your messages easy.

How Your Phone Receives Message Alerts

New Message Alerts

If your phone is on and receives a new digital message, the phone alerts you in two different ways:

- `Message Received` appears in the display, and:
 - The message icon  appears.
 - The phone beeps three times.
- or

- `Urgent Msg Received` or `EMERGENCY MSG RECVD` appears in the display, and:
 - The message icon  appears.
 - The phone beeps five times.

Short Message Indicators

If the sender has marked the message "Emergency" or "Urgent," the display shows the message content on the first line and either `Urgent` or `Emergency` on the second line. The message number appears in the upper right of the display.

Selecting and Reading Short Messages

- 1 Press  to enter the message center.
 - 2 Press  to scroll to **Text Msgs.**
 - If the message center has messages, you will see `Text Msgs XX New`, where XX is the number of unread messages.

The total number of messages stored, YY appears in the upper right of the display.

 - If the message center has no messages, you will see `Text Msgs Empty`, and 00 will appear in the upper right portion of the display.
 - 3 Press  or  to view the message headers.
- If the message center is full, you will see `Msg Memory Full` displayed for two seconds prior to viewing the message headers.



- 4 Now you can scroll through a list of message headers. Each header includes:

- the message number
- its urgency
- the beginning of the message text

Press **00** to scroll forward or backward through the list of message headers. The newest message is placed at the top of the list, and the oldest message is at the bottom.

- 5 Press **0** to select and view a message, and then the message text appears, starting on the top line.

Press **[Envelope]** to halt the display of the message text. Press **[Envelope]** again to restart it.

- 6 After reading a selected message, press **00** to scroll through the list of message headers.

- 7 Press **[END]** or press and hold **[Envelope]** to exit, or scroll to other features.

Initiating a Call Back

When the current message has scrolled across the display, you can call back a number embedded in the text message.

- 1 Press and hold **0**, or press **[SND]** to initiate a Call Back, if a Call Back number was included in the message.

You will see Dial No.? XXXXXXXX.

If a Call Back number was not included in the text message, the phone dials the first number present in the text message.

- 2 Press **0**, or press **[SND]** to dial the number shown.

or

Press **00** to search the text message for the next call back number.

[Hand] While in the message center, you can enter a Call Back number at any time by using the keypad, and then pressing **[SND]** to place the call.

Locking and Unlocking a Message

You can lock important messages to ensure their safekeeping for later review. A locked message cannot be deleted until the message is unlocked.

Press **[FON]** **5**, to toggle the current message between locked and unlocked.

Msg Locked is displayed when a message is locked.

[Hand] If your message memory is full and a new message is received, the oldest unlocked message that has been read is deleted.

Clearing Messages

Clearing the Current Message

- 1 Press **[CLEAR]** when the message you want to erase is on the display.

You will see Clear Message?, where XX is the number of the message you will clear. This number will appear in the upper right portion of the display.

- 2 Press **0** or **[STORE]** to clear the message.

You will see Message Cleared.

or

Press **END** or any other key if you do not wish to clear the message. You will see **Msg Not Cleared**.

 *You must unlock a locked message before you can clear it. For more information, see "Locking and Unlocking a Message" above.*

Clearing All Messages

To erase all the messages from your Message Center at once:

- 1 Press and hold **CLEAR** when you are in the message center.
You will see **Clear All?**.
 - 2 Press **0** or **STORE** to verify that you want all the messages cleared.
or
Press **END** if you decide not to clear all the messages. You are returned to the message center.
 - 3 Press **END** to exit from the message center.
If all messages have been cleared and no locked messages remain in the message center, **Msg Center Empty** appears in the display.
-  *You must unlock any locked messages before they can be cleared. For more information, see "Locking and Unlocking a Message" on page 52.*
- 4 Press **END** to exit, or scroll to other features.

Setting the Scrolling Speed

To adjust the scrolling speed of your incoming messages:

- 1 Press **ENVELOPE** to enter the message center.
- 2 Select **Msg Center Options**.
- 3 Select the **Set Scroll Speed** option.
- 4 Press **0/0** to scroll through scrolling speed settings:
 - To scroll slowly, select **Slow Scrolling**.
 - For medium scrolling, select **Medium Scrolling**.
 - To scroll quickly, select **Fast Scrolling**.
- 5 Press **0** to select a scrolling speed.
- 6 Press **END** to exit, or scroll to other features.





Accessories

The following accessories have been designed to work with your phone. Additional accessories may be available and are packaged separately. Please refer to your local service provider or retail outlet for more information.

Travel Charger

The Power Adapter (charger) connects to the phone. When connected directly to the phone, it charges the battery and also provides dead battery operation after one or two minutes.

Vehicle Power Adapter

 *The use of wireless devices and their accessories ("Devices") may be prohibited or restricted in certain areas. Always obey the laws and regulations on the use of these devices.*

The Vehicle Power Adapter connects to your phone and allows you to charge your phone's battery while driving.

 *In some cars, the engine must be running in order for the cigarette lighter to operate.*

Headset

The convenient headset provides both an earphone and microphone for simple handsfree and private telephone conversations. The headset plugs directly into the jack on the top left of your phone, so that you can wear your phone and move freely.

Belt Clip

The Belt Clip holds the phone while being worn on your belt.

 *The belt clip has been designed for your convenience and is not meant to secure your phone under all circumstances.*

Accessory Limited Warranty Information

We recommend that you use Motorola original batteries and accessories. Under its limited cellular telephone warranty, Motorola specifically disclaims any responsibility for damage caused by the use of portable cellular telephone accessories not manufactured by Motorola.

For details on the complete line of Motorola cellular accessories, see your dealer or visit our Web site at

<http://www.mot.com/>

Hands-Free Accessories...

The following hands-free wireless phone accessories are available today

- Hands-Free - Zero Installation Kit
- Hands-Free - Integrated Installation
- Hands-Free Headset

For information call 1-800-331-6456 or write

Motorola
Personal Communications Sector
600 North US Highway 45
Libertyville, Illinois 60048





What to do if...

I pressed the power button, but nothing happened. What's wrong with my phone?	Make sure that you press and hold the power button until the display appears and you hear an audible alert. If nothing still happens, then check that you have installed the batteries and that the batteries are fully charged. For more information about batteries and charging see "Your Battery" on page 15.
The battery won't charge.	Check the alignment of the batteries to ensure that they are installed properly. Make sure the positive (+) and negative (-) marks on the batteries match the markings on the phone. Check the charger. Is it properly connected? Is it fully inserted? Are its contacts clean and dry? The phone should provide a beep-tone and the display should read "Charging Battery" within two minutes from the transformer being installed. Check the charger is fully inserted and properly connected. See "Your Battery".
My battery didn't last as long as I expected. What can I do to extend battery life?	Your battery's "talk-time" and "standby-time" are relative measurements of the battery's capacity. The more you talk on the phone, the less standby-time you have, and vice versa. To get the most from your battery, allow it to charge fully. To charge the battery to 100% of its capacity, leave it charging for an extra hour after the charger's light turns green. Certain features demand power from your battery and reduce battery life. If you have selected the Automatic Display of Individual Call Timer feature, the display uses battery power to remain active during each call. Turn this feature off to conserve battery energy. (See "Displaying the Individual Timer Automatically" on page 35 for more information on this feature.) Make sure that you are using batteries that are compatible with your phone. Exposing your battery to extreme temperatures—below -10°C (14°F) or above 45°C (113°F)—can shorten battery life. Batteries are especially sensitive to high temperature extremes. As a good rule, always take your phone with you when you leave your car.
The display says, "Locked." How do I unlock my phone?	Enter the last three digits of your cellular number. If that doesn't work, use the factory preset lock code: 123. If all else fails, call your service provider (the company that sends you your monthly cellular bill) for assistance. (See "Using Lock/Security Features" on page 39 for more information on Security Features.)
I tried to place a call and received a fast busy signal.	This sound means that the cellular system did not process your call. For example, the cellular system may be overloaded with call attempts. To redial the number, press (SND) before ending your call attempt, or press (END) and try the call again later. (See "Redialing a Number" on page 20 for more information on redialing.)



I tried to place a call and received an alternating high/low tone.	This sound means your call did not reach the cellular system. You may have dialed the number too soon after turning the phone on. Wait until the "NS" light stops blinking before placing a call. An alternating tone may also indicate that your phone's signal is blocked.
I tried to listen to my Voice Mail (or use a paging service, a calling card, etc.) but nothing happened.	You have probably turned off the Scratchpad tones. Place your call, enter the access numbers when prompted by the recording, then press RCL SND . To avoid this problem in the future, follow the directions "Turning Scratchpad Tones On and Off" on page 38 to turn the Scratchpad tones on.
My phone was stolen. What should I report and to whom?	Report a stolen phone to the police and to your service provider (the company that sends you your monthly cellular service bills).
I tried to place a calling card call using the internal Phone Book, but it didn't work.	You may have turned off your Scratchpad tones. Follow the directions in "Turning Scratchpad Tones On and Off" on page 38 to turn the Scratchpad tones on. Check that you stored your calling card information in the correct order, and make sure the groups of numbers are separated by pauses. The easiest way to correct the sequence may be to start from scratch. Follow the instructions on "Storing Calling Card Information" on page 32, enter your calling card information again, and store it in the same memory location as your previous attempt. Also keep in mind that when using your calling card, you must enter the number you are calling with the area code, but without the initial "1." Check with your long distance carrier for details on using your calling card.



U.S. Food and Drug Administration (FDA)



The U.S. Food and Drug Administration's Center for Devices and Radiological Health Consumer Update on Mobile Phones

FDA has been receiving inquiries about the safety of mobile phones, including cellular phones and PCS phones. The following summarizes what is known--and what remains unknown--about whether these products can pose a hazard to health, and what can be done to minimize any potential risk. This information may be used to respond to questions.

Why the concern?

Mobile phones emit low levels of radiofrequency energy (i.e., radiofrequency radiation) in the microwave range while being used. They also emit very low levels of radiofrequency energy (RF), considered non-significant, when in the stand-by mode. It is well known that high levels of RF can produce biological damage through heating effects (this is how your microwave oven is able to cook food). However, it is not known whether, to what extent, or through what mechanism, lower levels of RF might cause adverse health effects as well. Although some research has been done to address these questions, no clear picture of the biological effects of this type of radiation has emerged to date. Thus, the available science does not allow us to conclude that mobile phones are absolutely safe, or that they are unsafe. However, the available scientific evidence does not demonstrate

any adverse health effects associated with the use of mobile phones.

What kinds of phones are in question?

Questions have been raised about hand-held mobile phones, the kind that have a built-in antenna that is positioned close to the user's head during normal telephone conversation. These types of mobile phones are of concern because of the short distance between the phone's antenna--the primary source of the RF--and the person's head. The exposure to RF from mobile phones in which the antenna is located at greater distances from the user (on the outside of a car, for example) is drastically lower than that from hand-held phones, because a person's RF exposure decreases rapidly with distance from the source. The safety of so-called "cordless phones," which have a base unit connected to the telephone wiring in a house and which operate at far lower power levels and frequencies, has not been questioned.



How much evidence is there that hand-held mobile phones might be harmful?

Briefly, there is not enough evidence to know for sure, either way; however, research efforts are on-going. The existing scientific evidence is conflicting and many of the studies that have been done to date have suffered from flaws in their research methods. Animal experiments investigating the effects of RF exposures characteristic of mobile phones have yielded conflicting results. A few animal studies, however, have suggested that low levels of RF could accelerate the development of cancer in laboratory animals. In one study, mice genetically altered to be predisposed to developing one type of cancer developed more than twice as many such cancers when they were exposed to RF energy compared to controls. There is much uncertainty among scientists about whether results obtained from animal studies apply to the use of mobile phones. First, it is uncertain how to apply the results obtained in rats and mice to humans. Second, many of the studies that showed increased tumor development used animals that had already been treated with cancer-causing chemicals, and other studies exposed the animals to the RF virtually continuously--up to 22 hours per day.

For the past five years in the United States, the mobile phone industry has supported research into the safety of mobile phones. This research has resulted in two findings in particular that merit additional study:

- 1 In a hospital-based, case-control study, researchers looked for an association between mobile phone use and either glioma (a type of brain cancer) or acoustic neuroma (a benign tumor of the nerve sheath). No statistically significant association was found between mobile phone use and acoustic neuroma. There was also no association between mobile phone use and gliomas when all types of types of gliomas were considered

together. It should be noted that the average length of mobile phone exposure in this study was less than three years.

When 20 types of glioma were considered separately, however, an association was found between mobile phone use and one rare type of glioma, neuroepitheliomatous tumors. It is possible with multiple comparisons of the same sample that this association occurred by chance. Moreover, the risk did not increase with how often the mobile phone was used, or the length of the calls. In fact, the risk actually *decreased* with cumulative hours of mobile phone use. Most cancer causing agents increase risk with increased exposure. An ongoing study of brain cancers by the National Cancer Institute is expected to bear on the accuracy and repeatability of these results.¹

- 2 Researchers conducted a large battery of laboratory tests to assess the effects of exposure to mobile phone RF on genetic material. These included tests for several kinds of abnormalities, including mutations, chromosomal aberrations, DNA strand breaks, and structural changes in the genetic material of blood cells called lymphocytes. None of the tests showed any effect of the RF except for the micronucleus assay, which detects structural effects on the genetic material. The cells in this assay showed changes after exposure to simulated cell phone radiation, but only after 24 hours of exposure. It is possible that exposing the test cells to radiation for this long resulted in heating. Since this assay is known to be sensitive to heating, heat alone could have caused the abnormalities to occur. The data already in the literature on the response of the micronucleus assay to RF are conflicting. Thus, follow-up research is necessary.²

FDA is currently working with government, industry, and academic groups to ensure the proper follow-up to these industry-funded research findings. Collaboration with the Cellular Telecommunications Industry Association (CTIA) in particular is expected to lead to FDA providing research recommendations and scientific oversight of new CTIA-funded research based on such recommendations.

Two other studies of interest have been reported recently in the literature:

- 1 Two groups of 18 people were exposed to simulated mobile phone signals under laboratory conditions while they performed cognitive function tests. There were no changes in the subjects' ability to recall words, numbers, or pictures, or in their spatial memory, but they were able to make choices more quickly in one visual test when they were exposed to simulated mobile phone signals. This was the only change noted among more than 20 variables compared.³
- 2 In a study of 209 brain tumor cases and 425 matched controls, there was no increased risk of brain tumors associated with mobile phone use. When tumors did exist in certain locations, however, they were more likely to be on the side of the head where the mobile phone was used. Because this occurred in only a small number of cases, the increased likelihood was too small to be statistically significant.⁴

In summary, we do not have enough information at this point to assure the public that there are, or are not, any low incident health problems associated with use of mobile phones. FDA continues to work with all parties, including other federal agencies and industry, to assure that research is undertaken to provide the necessary answers to the outstanding questions about the safety of mobile phones.

What is known about cases of human cancer that have been reported in users of hand-held mobile phones?

Some people who have used mobile phones have been diagnosed with brain cancer. But it is important to understand that this type of cancer also occurs among people who have not used mobile phones. In fact, brain cancer occurs in the U.S. population at a rate of about 6 new cases per 100,000 people each year. At that rate, assuming 80 million users of mobile phones (a number increasing at a rate of about 1 million per month), about 4800 cases of brain cancer would be expected each year among those 80 million people, whether or not they used their phones. Thus it is not possible to tell whether any individual's cancer arose because of the phone, or whether it would have happened anyway. A key question is whether the risk of getting a particular form of cancer is greater among people who use mobile phones than among the rest of the population. One way to answer that question is to compare the usage of mobile phones among people with brain cancer with the use of mobile phones among appropriately matched people without brain cancer. This is called a case-control study. The current case-control study of brain cancers by the National Cancer Institute, as well as the follow-up research to be sponsored by industry, will begin to generate this type of information.



What is FDA's role concerning the safety of mobile phones?

Under the law, FDA does not review the safety of radiation-emitting consumer products such as mobile phones before marketing, as it does with new drugs or medical devices. However, the agency has authority to take action if mobile phones are shown to emit radiation at a level that is hazardous to the user. In such a case, FDA could require the manufacturers of mobile phones to notify users of the health hazard and to repair, replace or recall the phones so that the hazard no longer exists.

Although the existing scientific data do not justify FDA regulatory actions at this time, FDA has urged the mobile phone industry to take a number of steps to assure public safety. The agency has recommended that the industry:

- support needed research into possible biological effects of RF of the type emitted by mobile phones;
- design mobile phones in a way that minimizes any RF exposure to the user that is not necessary for device function; and
- cooperate in providing mobile phone users with the best possible information on what is known about possible effects of mobile phone use on human health.

At the same time, FDA belongs to an interagency working group of the federal agencies that have responsibility for different aspects of mobile phone safety to ensure a coordinated effort at the federal level. These agencies are:

- National Institute for Occupational Safety and Health
- Environmental Protection Agency
- Federal Communications Commission
- Occupational Health and Safety Administration

- National Telecommunications and Information Administration
- The National Institutes of Health also participates in this group.

In the absence of conclusive information about any possible risk, what can concerned individuals do?

If there is a risk from these products--and at this point we do not know that there is--it is probably very small. But if people are concerned about avoiding even potential risks, there are simple steps they can take to do so. For example, time is a key factor in how much exposure a person receives. Those persons who spend long periods of time on their hand-held mobile phones could consider holding lengthy conversations on conventional phones and reserving the hand-held models for shorter conversations or for situations when other types of phones are not available.

People who must conduct extended conversations in their cars every day could switch to a type of mobile phone that places more distance between their bodies and the source of the RF, since the exposure level drops off dramatically with distance. For example, they could switch to:

- a mobile phone in which the antenna is located outside the vehicle,
- a hand-held phone with a built-in antenna connected to a different antenna mounted on the outside of the car or built into a separate package, or
- a headset with a remote antenna to a mobile phone carried at the waist.

Again, the scientific data do not demonstrate that mobile phones are harmful. But if people are concerned about the radiofrequency energy from these products, taking the simple precautions outlined above can reduce any possible risk.



Where can I find additional information?

For additional information, see the following websites:

Federal Communications Commission (FCC) RF Safety Program (select "Information on Human Exposure to RF Fields from Cellular and PCS Radio Transmitters"):
<http://www.fcc.gov/oet/rfsafety>

World Health Organization (WHO) International Commission on Non-Ionizing Radiation Protection (select Qs & As):
<http://www.who.int/emf>

United Kingdom, National Radiological Protection Board:
<http://www.nrpb.org.uk>

Cellular Telecommunications Industry Association (CTIA):
<http://www.wow-com.com>

U.S. Food and Drug Administration (FDA) Center for Devices and Radiological Health: <http://www.fda.gov/cdrh/consumer/>

- 1 Muscat et al. *Epidemiological Study of Cellular Telephone Use and Malignant Brain Tumors*. In: *State of the Science Symposium*; 1999 June 20; Long Beach, California.
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- 3 Preece, AW, Iwi, G, Davies-Smith, A, Wesnes, K, Butler, S, Lim, E, and Varey, A. *Effect of a 915-MHz simulated mobile phone signal on cognitive function in man*. *Int. J. Radiat. Biol.*, April 8, 1999.
- 4 Hardell, L, Nasman, A, Pahlson, A, Hallquist, A and Mild, KH. *Use of cellular telephones and the risk for brain tumors: a case-control study*. *Int. J. Oncol.*, 15: 113-116, 1999.





English

64 *U.S. Food and Drug Administration (FDA)*



Patent Information

Manufactured under one or more of the following patents:

4121218	4127824	4128740	4138681	4193036	4254382	4963812	4963843	4965537	4970475	4972355	4972432
4302845	4312074	4327319	4329666	4369516	4369522	4972455	4975808	4982108	4984219	4989230	D314173
4378603	4390963	4398265	4400584	Re.31470	4431977	4992753	4998289	D315330	D315543	5004992	5008925
4434461	4455534	4462098	4484153	4485486	4486624	5010309	5010570	5014294	5014346	D316859	5017856
4491972	4504834	D278708	4523155	4546329	4549311	5018188	5020076	5020091	5020092	5020093	5023580
4550426	4551696	4564821	D282169	4571595	4573017	5023866	5023911	5025387	5028859	5029233	5036532
4574243	4585957	4602218	D284759	4616314	4617520	5040127	5042071	5045824	5053924	5055800	5055802
4626309	4628529	4629829	4630304	4630305	4633141	5055803	5057762	5058136	5059885	5060264	5060294
4636593	4636741	4644351	D288432	4648125	4649543	5063340	5065408	5067139	5068625	5070310	5077757
D288683	4654655	4654867	4662691	4667333	4668917	5081674	5083304	5093632	D325028	5107487	5109536
4670747	4672502	4692726	4704588	D292578	4706036	5111162	5113400	5113436	5117441	5117449	5121047
D292920	4710724	4711361	4715063	4716319	4716391	5121288	5121412	5122722	D327062	5124889	5127040
4723305	D294257	4727306	4727583	4730195	4734635	5127042	5128834	5130682	5130683	5133010	5136135
4737976	4740794	4741018	4741034	4742562	D295627	5140286	5142551	5142696	5148471	5150075	5150359
D295975	4751737	4761621	4764737	D297734	D297735	5150384	5152006	5152007	5153590	5157693	5159283
D297736	4777564	Re.32768	4783697	D299232	4797929	5160898	5163159	5164652	5166596	5166642	5170173
4798975	4800348	4802236	4803726	4809356	4811377	5170492	5173672	5175759	5175874	5177458	5182749
4811404	4816774	4817157	4823098	D300742	D300827	5185566	5187640	5187809	5192924	5193223	5195106
4827226	4827507	4829274	4829543	4837534	4843621	5195108	5198887	5200655	5201069	5202654	5203009
4845772	4851966	4868576	4872196	4873683	4876552	D334746	5204977	5205751	5208566	5210793	5211581
4876740	D304189	4879533	4885553	4887050	4890199	5212815	5212826	5214675	5214774	5220290	5222078
D305427	4896124	4896361	4897873	D305717	4903327	5222104	5222251	5224122	5230007	5230093	5233506
D306163	4904549	4905288	4905301	D306299	4910470	5233633	5235492	5237257	5237570	5239127	5239294
4912602	4916262	4918403	4918732	4922209	4924194	5241545	5241548	5241592	5241650	5241688	5241693
4930126	D309301	D309451	4945570	4954796	4956854	D338887	5242767	D339127	D339335	D339336	D339337
						5247544	D339578	5249302	5250916	5251331	5253292



5255292	5257414	5259005	5260170	5260988	5261119	5565881	5570453	5572223	5572224	5577267	5577268
5262710	5263052	5263055	5265219	D341589	5271042	D375932	D375952				
D342248	5276685	5276707	5276913	5278527	5278832	Other patents pending					
5278994	5280637	5280644	D343615	D343616	D343834						
D343835	5287553	5287555	5287556	5289505	D344512						
5297142	5299232	5301364	5301365	5308716	5312705						
5321847	5323421	5325429	D348250	D348427	5327642						
D348665	D348666	D348668	5331123	D349273	5336984						
5338909	D350113	D350348	D350349	D350350	5349588						
5351245	D351375	5359696	5361400	5363071	5365549						
D352503	5366826	5367538	5367558	5371791	D353131						
5373101	D353361	5375143	5375258	D353587	D353588						
5379324	5384825	5392000	5392023	5396654	D356309						
5402447	5404120	5404582	5406146	5406562	D357224						
D357457	5410275	5414711	D358148	5420759	5424689						
5428820	5428836	5430416	5432017	5434947	5436589						
5436802	5438684	D361070	5444764	5446763	5448763						
5448770	5448771	5453997	D362840	D362852	5461643						
5463628	5465412	5469177	5475752	D365094	5477192						
D365817	5486843	5487184	5488335	5490177	5493198						
5493700	5493714	5495206	5497126	5497383	D367640						
5499273	5504812	5506490	D368696	5508709	5510693						
5511235	5513078	5513382	D369359	5513996	D369598						
D369797	5519303	5519346	5519506	5519777	D370016						
D370463	5526398	D370672	5530922	5539360	5542103						
5542106	5544250	D372481	5546380	D372896	5551078						
5555550	5559471	D374013	5561436	D374227	D374424						

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